



CWC

(Continuous Welding Consumables)



CWC RANGE



Solid Wires for GMAW and GTAW

Flux cored wires

Metal cored wires

Self Shielded wire

Solid wire and Flux for SAW

Solid Wire Grades



C-Mn Steel



Low Alloy Steel



**Stainless Steel & Duplex
Stainless Steel**

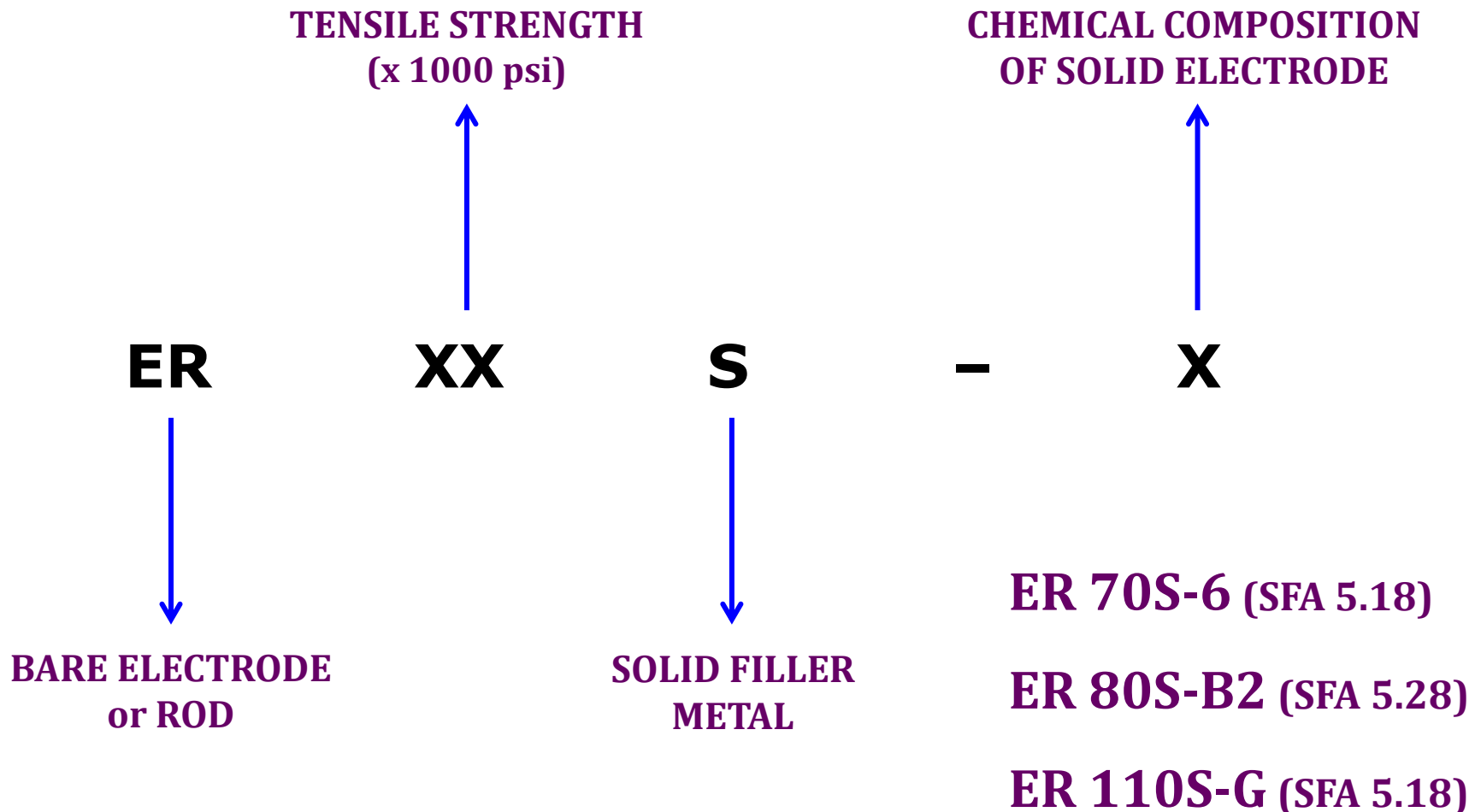


Non Ferrous (Al, Ni, Cu, Co)



CLASSIFICATION

Solid Wires (C-Mn and Low Alloy)





C-Mn and Low Alloy Solid Wires



C-Mn Steel

ER70S-6, 70S-G, 70S-2, 70S-3

Low Alloy Steel

ER70S-A1, 80S-B2/B6, 90S-B3/B9,
80S-Ni1/Ni2, 80S-D2, 90S-D2, 100S-G &
110S-G

CLASSIFICATION

Solid Wires (SS & Duplex)



CHEMICAL COMPOSITION /
GRADE OF SOLID ELECTRODE

E R

X X X

BARE ELECTRODE
or ROD

ER 308L (SFA 5.9)

ER 347 (SFA 5.9)

ER 2209 (SFA 5.9)



SS and NF Solid Wires



Stainless Steel & Duplex Stainless Steel

ER308L, 309L, 316L, 347, 310, 385
ER410, 430, 410NiMo
ER2209, 2594

18 8 Mn grade (Miginox 307)

Non Ferrous (Al, Ni, Cu, Co)

ER1100, 4043, 5356, 5556, 5183
ERNi1, NiCr-3, NiCrMo-3/Mo-4, NiCu-7
ERCuSn-A, CuSi-A, CuNi
ERCoCr-A (Stellite 6)

Flux Cored Wires



C-Mn Steel



Low Alloy Steel



**Stainless Steel & Duplex
Stainless Steel**



Hard Facing



C-Mn Steel FCW



CLASSIFICATION

Flux Cored Wires (C-Mn steel)



TENSILE STRENGTH
(x 10,000 psi)

FLUX CORED
ELECTRODE

SHIELDING GAS
C-CO₂, M-Mix Gas

OPTIONAL-H₂ LEVEL
H4, H8, H16

E

X

X

T

X

X

-

J

HX

ELECTRODE

WELDING POSITION
0-Flat & Horizontal
1-All Position

USABILITY DESIGNATOR
1-14 Polarity & Operating
Characteristics

IMPROVED IMPACT
At -40°C min. 27 J



C-Mn Steel

Automig FC 71T-1

Automig FC 121

Automig FC 71T-5

Automig FC 71T-1C-J

**SFA 5.20
and
5.36**



Automig FC 71T-1



C-Mn Steel



APPLICATION:

Storage tanks, Structural steel, Bridges, Shipbuilding
Welding C-Mn steel of typical 500 MPa UTS
General carbon steel fabrication

AWS Class SFA 5.20 : E71T-1C/M CWB/CE approved

FEATURES :

Rutile type gas shielded FCW wire

DUAL SHIELD wire works with 100%CO₂ and Ar+CO₂ shielding
High quality single and multi-pass welds

EQUIVALENT: Supabase, Supabase X Plus, Automig 70S-6



Automig FC 121



C-Mn Steel



APPLICATION:

Shipbuilding, Towers, Cranes, Bridges
Welding C-Mn steel, Rolling stocks, Hulls
Machinery parts, Steel frames
General carbon steel fabrication

AWS Class SFA 5.20 : E71T-1C

FEATURES :

Vacuum packed Rutile type gas shielded FCW wire
Suitable with 100%CO₂
High quality single and multi-pass welds

EQUIVALENT: Supabase, Supabase X Plus, Automig 70S-6



In E71T class, 2 more variants

Automig FC 71T-5 :

Basic type FC wire

High quality single and multi-pass welds

Diffusible hydrogen below 4 ml/100 gm of weld metal

Impact toughness @ -30°C

Automig FC 71T-1C-J :

Rutile type FC wire

Excellent combination of T1 performance with subzero toughness down to -40°C

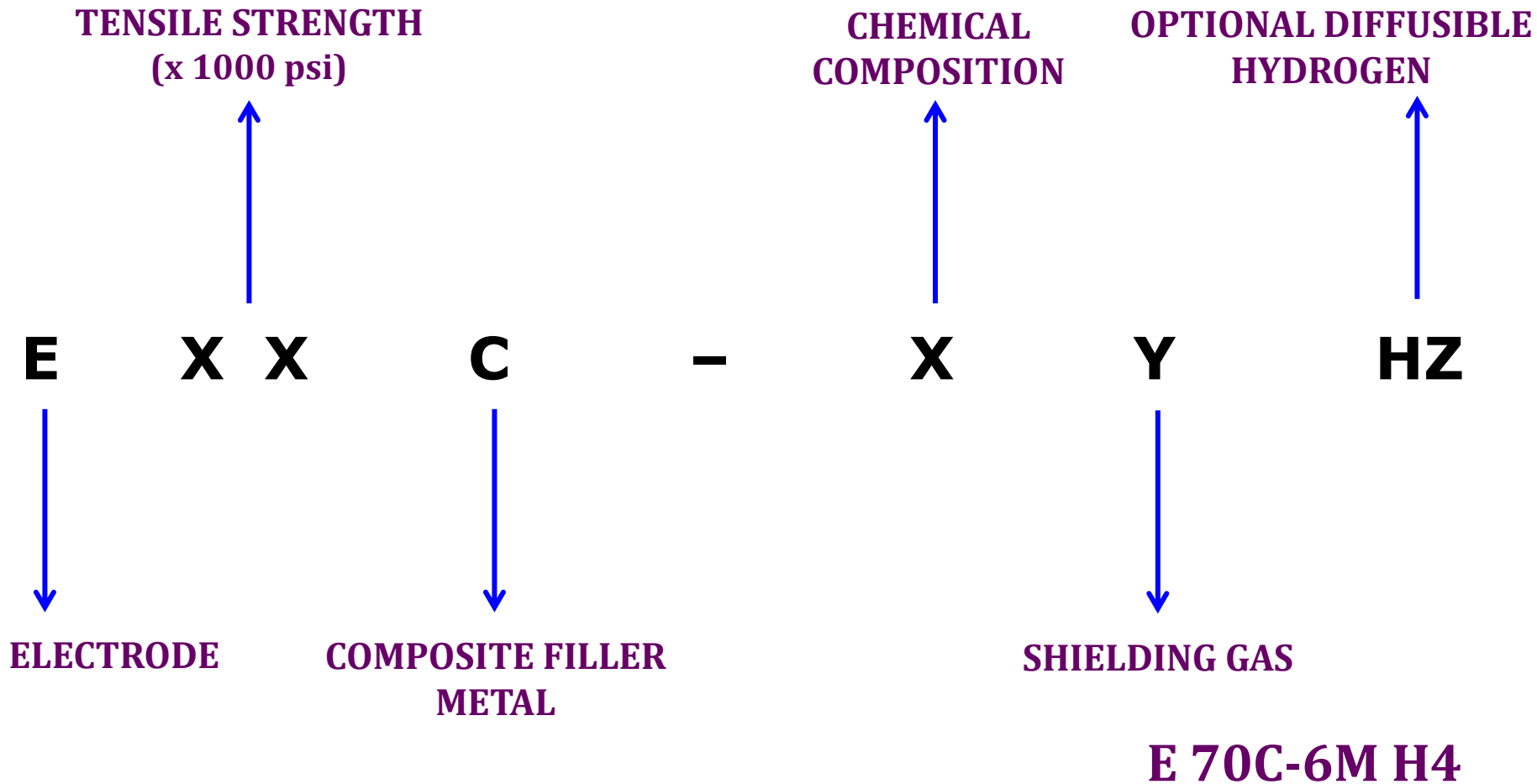


C-Mn Steel Metal Cored Wires



CLASSIFICATION

C-Mn Steel Metal Cored Wires





C-Mn Steel Metal Cored

Automig MC 70C-6C

Automig MC 70C-6M



SFA 5.18
and
5.36



Low Alloy Steel FCW Wires



CLASSIFICATION

Flux Cored Wires (Low Alloy Steel)



TENSILE STRENGTH
(x 10 ksi)

FLUX CORED
ELECTRODE

COMPOSITION OF
WELD

IMPROVED IMPACT
At -40°C min. 27 J

E

X

X

T

X

-

X

X

-

J

HX

ELECTRODE

WELDING POSITION
0-Flat & Horizontal
1-All Position

USABILITY
DESIGNATOR 1-14
Polarity & Operating
Characteristics

SHIELDING GAS
C-CO₂, M-Mix Gas

OPTIONAL-H₂
LEVEL H₄, H₈,
H₁₆



Low Alloy Steel

Automig FC 81T1-B2

Automig FC 81T1-Ni1

Automig FC 90T5-K2

Automig FC 18M Spl

Automig FC 110T5-K4

Automig FC 91T1-B3

Automig FC 81T1-K2

Automig FC 81T1-K2C-J

Automig FC 180R

Automig FC 120T5-K4

SFA 5.29 and 5.36



Automig FC 81T1-B2



Low Alloy Steel



APPLICATION:

Boilers, Heat exchangers, Pressure vessels, Steam pipes

Welding of 13CrMo44, 15CrMo5, 15Cr3 steels

Welding of 1.25Cr/0.5Mo, 1Cr/0.5Mo creep resistant steel

P11 / T11 / F11 grade steels

AWS Class SFA 5.29 : E81T1-B2C

FEATURES :

Rutile type gas shielded FCW wire

1.25Cr / 0.5Mo weld deposit

Resistant to creep and heat upto 550°C

Preheating require for equivalent base metals

EQUIVALENT: Cromoten, Automig/Tigfil 80S-B2



Automig FC 91T1-B3



Low Alloy Steel



APPLICATION:

Boilers, Heat exchangers, Pressure vessels, Steam pipes
Welding of 2.25Cr/0.5Mo, 2.25Cr/1.0Mo creep resistant steel
P22 / T22 / F22 grade steels

AWS Class SFA 5.29 : E91T1-B3C

FEATURES :

Rutile type gas shielded FCW wire
2.25Cr / 1.0Mo weld deposit
Resistant to creep and heat upto 600°C
Preheating require for equivalent base metals

EQUIVALENT: Cromoten C, Automig/Tigfil 90S-B3



Automig FC 81T1-Ni1



Low Alloy Steel



APPLICATION:

Storage tank at low temperature, Offshore application,
Bridges
Welding of 1% Ni steel

AWS Class SFA 5.29 : E81T1-Ni1C

FEATURES :

Rutile type gas shielded FCW wire
Typical 1% Ni weld deposit
Excellent fracture toughness at -30°C
Suitable with 100%CO₂ shielding gas

EQUIVALENT: Tenalloy 70C, Automig/Tigfil 80S-Ni1



Automig FC 180R



Low Alloy Steel



APPLICATION:

Weathering steel Corten A and B grade
Welding of HY 80, HY 100 steel

AWS Class SFA 5.29 : E81T1-W2C/M

FEATURES :

Rutile type gas shielded FCW wire
Excellent corrosion resistance
Matches coloring of Weathering type structural steel
Suitable with 100%CO₂ and Ar+CO₂ shielding gas
RDSO Class IV approved

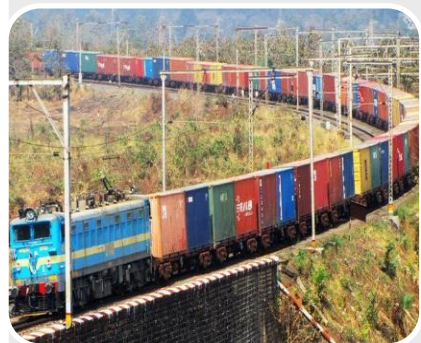
EQUIVALENT: Ultracorten III



Automig FC 18M Spl



Low Alloy Steel



APPLICATION:

CONCOR wagons

Welding of high tensile steels like IS 8500 Gr. 540B, 570B and 590B

AWS Class SFA 5.29 : E91T1-D1 C/M RDSO Approved

FEATURES :

Rutile type gas shielded FCW wire

For high strength and moderate impact application

Suitable with 100%CO₂ and Ar+CO₂ shielding gas

RDSO Class III approved



Medium to high strength, Low temperature impact application

Application	Impact / UTS	Product
Offshore platform, Shipbuilding, HY 80, HY 100	@ -30°C / 80 ksi @ -40°C / 80 ksi	Automig FC 81T1-K2 Automig FC 81T1-K2C-J
Offshore structures, N-A-XTRA 55 & 60, LA60, Sailma 450/450HI	@ -50°C / 90 ksi	Automig FC 90T5-K2



High strength, Low temperature impact application

Application	Impact / UTS	Product
High strength Q&T fine grained steels, N-A-XTRA 65 & 70, USST1, T1B	@ -50°C / 110 ksi	Automig FC 110T5-K4 (E110T5-K4)
High strength Q&T fine grained steels, HSLA steels, HY 80, HY 100, ASTM A 514, Mining machinery, Cranes	@ -50°C / 120 ksi	Automig FC 120T5-K4 (E120T5-K4)



Medium to high strength, High creep strength

Application	UTS	Product
Welding 9Cr-1Mo creep resistant steels, Boiler and pipeline construction, P91, T91 grades	90 ksi	Automig FC 91T1-B9 (E91T1-B9)



Low Alloy Steel Metal Cored



Automig MC 90C-G



Low Alloy Steel



APPLICATION: High Strength, High Impact

Heavy fabrication, Earth moving equipment, Mining machinery, Cranes, HY 80, A 514, A 710 steels

AWS Class SFA 5.28 : E90C-G

UTS : 700 MPa, YS : 660 MPa, EL : 21 %,
Impact @ -50°C : 40-50 J

FEATURES :

Low alloy gas shielded metal cored wire

No slag formation

Single and multi pass welding

High travel speed and high deposition rates

Low temperature toughness at -50°C

Shielding gas : 80Ar+20CO₂



SS & Duplex Stainless Steel FCW Wires



CLASSIFICATION

Flux Cored Wires (SS)



ELECTRODE

E

X X X

COMPOSITION OF
WELD

FLUX CORED
ELECTRODE

T

X

WELDING POSITION
0-Flat & Horizontal
1-All Position

SHIELDING GAS 1-CO₂,
3-No Gas, 4-Ar+CO₂

-

X

TOUGHNESS AND
LE @ -196°C

J



SS & Duplex Steel

Miginox FC 308L

Miginox FC 309L

Miginox FC 316L

Miginox FC 347

Miginox FC 2209



RDSO approved

SFA 5.22



Miginox FC 308L



Stainless Steel



APPLICATION:

Chemical plants, Food processing industries
Welding of 304, 304L type SS

AWS Class SFA 5.22 : E308LT1-1/4 RDSO Gr. VI Approval

FEATURES :

Rutile type extra low carbon gas shielded SS FCW wire
Typical 19Cr/9Ni weld deposit
Excellent resistance against corrosion and cracking
Suitable with 100%CO₂ and Ar+CO₂ shielding gas

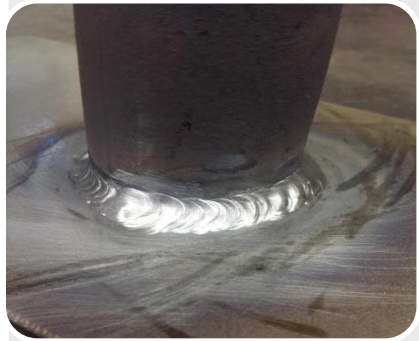
EQUIVALENT: Superinox 1C, Miginox /Tiginox 308L



Miginox FC 309L



Stainless Steel



APPLICATION:

Stainless steel to Carbon steel joining, Cladding on Carbon and Low alloy steels, Welding of 309L type SS

AWS Class SFA 5.22 : E309LT1-1/4

FEATURES :

Rutile type extra low carbon gas shielded SS FCW wire

Typical 23Cr/12Ni weld deposit

Excellent resistance against corrosion and cracking

High oxidation resistance upto 1100°C

Suitable with 100%CO₂ and Ar+CO₂ shielding gas

EQUIVALENT: Betanox DL, Miginox /Tiginox 309L



APPLICATION	PRODUCT	EQUIVALENT BRAND
Textile processing, Naval & Chemical environment, Welding 316, 316L, 317, 317L, 318 type steels	Miginox FC 316L (Improved corrosion and pitting resistance)	Superinox 2C, Miginox/Tiginox 316L
Welding of stabilized AISI 321, 321H, 347, 347H steels, Boilers, Gas turbine	Miginox FC 347 (Resistance to intergranular corrosion and scaling upto 850°C)	Superinox 1B, Miginox/Tiginox 347



Miginox FC 2209



Duplex SS



APPLICATION:

Sea water handling equipment, Pipelines transporting chloride bearing products, Offshore, Welding of 2205, 2209 Duplex SS

AWS Class SFA 5.22 : E2209T1-1/4

FEATURES :

Rutile type gas shielded Duplex SS FCW wire

Austenitic-Ferritic weld deposit

High strength and resistance to chloride induced SCC and pitting

Suitable with 100%CO₂ and Ar+CO₂ shielding gas

EQUIVALENT: Betanox 4462, Miginox /Tiginox 2209



Self Shielded Wire



Miginox OA 307



Stainless Steel



APPLICATION: Austenitic Mn steel welding

Dissimilar steel welding : Austenitic Mn steel to carbon steel,
Repairing cracks in austenitic Mn steel parts

AWS Class SFA 5.22 : E307T0-3

FEATURES :

Self shielded flux cored stainless steel wire

Smooth arc, less spatter

Excellent crack resistance with moderate strength

Buffer layer before hardfacing

EQUIVALENT: Austomang 307



Hard Facing FCW and Metal Cored Wires



Hard Facing FCW

Automig FC 580

Automig FC 600

Hard Facing Metal Cored

Automig MC 40

Automig MC 42

Automig MC 50

Work Hardening

Autocore MnO



Automig FC 580



Hard Facing



APPLICATION: High Abrasion Moderate Impact

Bucket teeth, Dipper teeth, Pug mill screw, Crusher jaws and cones, Surfacing

Alloy Basis : C-Cr

As Welded : 54-57 HRc (550-600 BHN)

FEATURES :

Basic type gas shielded FCW wire for hard facing

Non machinable air hardenable deposit

Resist high stress abrasion-friction

Withstand impact of medium severity

Shielding gas : 100%CO₂

EQUIVALENT: Zedalloy 550



Automig FC 600



Hard Facing



APPLICATION: High Abrasion

Oil expeller worms, Bucket and Dipper teeth, Screw feeder, Crusher jaws and cones, Surfacing

Alloy Basis : C-Cr-Mo

As Welded : 58 HRc (600 BHN) in single layer

FEATURES :

Gas shielded FCW wire for hard facing

Non machinable air hardenable deposit

Resist high abrasion

Shielding gas : Mix gas and 100%CO₂

EQUIVALENT: Zedalloy 600



Hard Facing Physical Properties



Physical Properties

Automig FC 580

Automig FC 600

Machinability

-

-

Abrasion Resistance



Impact Resistance



Corrosion Resistance





Autocore MnO



Work Hardening



APPLICATION: 14% Mn steel repair

Buffer layer before hardfacing, Crack repair, Repair welding of 14% Mn steel

Alloy Basis : Cr-Ni-Mn-Mo

FEATURES :

- Self shielded flux cored wire
- Smooth arc, less spatter
- Work hardening properties
- Excellent crack resistance



Metal Cored Wires



Automig MC 40



Hard Facing



APPLICATION: Metal to metal wear, High temperature, Impact

Repair welding of hot forging dies, hot working tools, H11, H13, DIN 1.2714 and DB-6 die block material

Alloy Basis : Cr-Mo-Ni-V

As Welded : 42-46 HRc, Stress relieved : 44-47 HRc

FEATURES :

Gas shielded metal cored wire, no slag formation

Multi pass crack free weld, Machinable

Resist metal to metal wear at high temperature, high impact,

Shielding gas : 80Ar+20CO₂

Available in 1.6, 2.0, 2.4 mm sizes

EQUIVALENT: Nimoten Plus 535 B



Automig MC 42



Hard Facing



APPLICATION: Metal to metal wear, High temperature, Impact

Repair welding of hot forging dies, hot working tools, H11, H13 and DB-6 die block material

Alloy Basis : Cr-Mo-Ni-V

As Welded : 43-47 HRc, Stress relieved : 44-48 HRc

FEATURES :

Gas shielded metal cored wire, no slag

Multi pass crack free weld, Machinable weld deposit

Resist metal to metal wear at high temperature, high impact,

Shielding gas : $80\text{Ar}+20\text{CO}_2$

Available in 1.6, 2.0, 2.4 mm sizes



Automig MC 50



Hard Facing



APPLICATION: Metal to metal wear, High temperature, Impact

Press forging dies, hot piercing punches, screw press dies, trimming and blanking dies

Alloy Basis : Cr-Mo-Ni-W-V

As Welded : 48-52 HRc, Stress relieved : 49-54 HRc

FEATURES :

Gas shielded metal cored wire, no slag formation

Multi pass crack free weld max up to 15 mm, Machinable

Resist metal to metal wear at high temperature, high impact,

Shielding gas : 80Ar+20CO₂











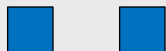

Available in 1.6, 2.0, 2.4 mm sizes

EQUIVALENT: Nimoten HFD



Metal Cored Comparison



Physical Properties	Automig MC 40	Automig MC 42	Automig MC 50
Machinability			
Metal to Metal Wear Resistance			
Impact Resistance			
Corrosion Resistance			



Customer Feedback



[Kalyani Technoforge, Pune](#)



Thank You !